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United States Patent [19]**Albers**[11] **Patent Number:** **5,556,524**[45] **Date of Patent:** **Sep. 17, 1996**[54] **ELECTRON-CONDUCTING MOLECULAR PREPARATIONS**[75] Inventor: **Martin Albers**, Tampere, Finland[73] Assignee: **Valtion Teknillinen Tutkimuskeskus**, Finland[21] Appl. No.: **389,597**[22] Filed: **Feb. 16, 1995**[30] **Foreign Application Priority Data**

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[51] **Int. Cl.⁶** **C25B 13/00**; H01B 1/00; G01N 27/26[52] **U.S. Cl.** **204/296**; 204/400; 204/403; 204/415; 252/500; 429/192; 429/198; 429/213; 429/249[58] **Field of Search** 252/500; 429/192; 429/198, 213, 249; 204/415, 296, 403[56] **References Cited****U.S. PATENT DOCUMENTS**

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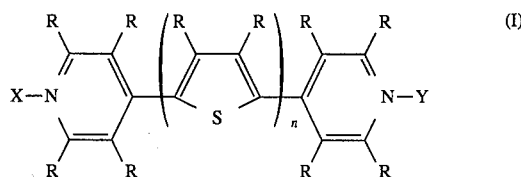
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The invention relates to an electron-conducting molecular preparation designed to act as a conductor by receiving an electron at its one end and conducting the electron along its molecular structure to its other end. The molecule in the preparation has the following general formula (I):



wherein

n represents an integer from 1 to 12

the groups X and Y are identical or different and denote functional substituents bound to the pyridine nitrogen, or one or both of X and Y are absent, and

R, being identical or different, represent a hydrogen atom or an aliphatic side chain introduced for enhancing the solubility of the molecule in organic solvents, for example a branched or unbranched alkyl or alkoxy group containing any number of carbon atoms.

The molecular preparations can be incorporated in a substantially insulating membrane to act as conductors between an electroactive species and an electrode in diagnostic determinations.

20 Claims, 9 Drawing Sheets